

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference Case 21409	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 03/10489	International filing date (day/month/year) 22/09/2003	(Earliest) Priority Date (day/month/year) 27/09/2002
Applicant ROCHE VITAMINS AG		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☒ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/10489

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12P17/04 C12P7/58

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C12P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, WPI Data, EMBASE, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 242 233 B1 (SUGISAWA TERUhide ET AL) 5 June 2001 (2001-06-05) table 1B	9
Y	column 10, line 11 - line 16; claim 5; table 1B	3,4,10
Y	EP 0 832 974 A (HOFFMANN LA ROCHE) 1 April 1998 (1998-04-01) SEQ ID NO:8 page 2, line 1 - line 2 claims 1,15-19; examples 4,8-11; table 10	1-8,10
Y	EP 0 911 415 A (HOFFMANN LA ROCHE) 28 April 1999 (1999-04-28) examples 2,3	1,2,5-8
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

9 February 2004

Date of mailing of the international search report

16/02/2004

Name and mailing address of the ISA

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Authorized officer

Gruber, A

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SAITO Y ET AL: "CLONING OF GENES CODING FOR L-SORBOSE AND L-SORBOSONE DEHYDROGENASES FROM GLUCONOBACTER OXYDANS AND MICROBIAL PRODUCTION OF 2-KETO-L-GULONATE, A PRECURSOR OF L-ASCORBIC ACID, IN A RECOMBINANT G. OXYDANS STRAIN" APPLIED AND ENVIRONMENTAL MICROBIOLOGY, WASHINGTON, DC, US, vol. 63, no. 2, 1997, pages 454-460, XP000886144 ISSN: 0099-2240 page 455, right-hand column, paragraph 4; table 1	1-4, 8-10
A	SUGISAWA T ET AL: "ISOLATION AND CHARACTERIZATION OF A NEW VITAMIN C PRODUCING ENZYME (L-GULONO-GAMMA-LACTONE DEHYDROGENASE) OF BACTERIAL ORIGIN" BIOSCIENCE, BIOTECHNOLOGY AND BIOCHEMISTRY, vol. 59, no. 2, February 1995 (1995-02), pages 190-196, XP001084987 ISSN: 0916-8451 page 191, right-hand column, paragraph 3	1, 2, 5-8
A	MACAULEY S ET AL: "THE GENUS GLUCONOBACTER AND ITS APPLICATIONS IN BIOTECHNOLOGY" CRC CRITICAL REVIEWS IN BIOTECHNOLOGY, CRC PRESS, BOCA RATON, FL, US, vol. 21, no. 1, 2001, pages 1-25, XP008026977 ISSN: 0738-8551 page 12, left-hand column, paragraph 1 -page 18, left-hand column, paragraph 1	1, 2, 8
A	HANCOCK R D ET AL: "Biotechnological approaches for l-ascorbic acid production" TRENDS IN BIOTECHNOLOGY, ELSEVIER PUBLICATIONS, CAMBRIDGE, GB, vol. 20, no. 7, 1 July 2002 (2002-07-01), pages 299-305, XP004361398 ISSN: 0167-7799 page 300, left-hand column, paragraph 2 -page 301, left-hand column, paragraph 1	1, 2, 8

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>BOUDRANT J: "MICROBIAL PROCESSES FOR ASCORBIC ACID BIOSYNTHESIS: A REVIEW" ENZYME AND MICROBIAL TECHNOLOGY, STONEHAM, MA, US, vol. 12, no. 5, 1 May 1990 (1990-05-01), pages 322-329, XP000646789 ISSN: 0141-0229 page 323, left-hand column, paragraph 3 -page 325, left-hand column, paragraph 2 -----</p>	1,2,8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

EP 03/10489

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 6242233	B1	05-06-2001	BR	9805685 A	11-04-2000
			CA	2253023 A1	01-06-1999
			CN	1225390 A	11-08-1999
			EP	0922759 A2	16-06-1999
			IN	187978 A1	03-08-2002
			JP	11225754 A	24-08-1999
			US	2001026933 A1	04-10-2001
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EP 0832974	A	01-04-1998	EP	0832974 A2	01-04-1998
			BR	9704748 A	10-11-1998
			CN	1183472 A	03-06-1998
			JP	10229885 A	02-09-1998
<hr/>					
EP 0911415	A	28-04-1999	EP	0476442 A2	25-03-1992
			EP	0911415 A2	28-04-1999
			AT	180831 T	15-06-1999
			CN	1060111 A ,B	08-04-1992
			CN	1274756 A	29-11-2000
			DE	69131286 D1	08-07-1999
			DE	69131286 T2	11-11-1999
			DK	476442 T3	15-11-1999
			JP	3086301 B2	11-09-2000
			JP	4281785 A	07-10-1992
			US	5250428 A	05-10-1993